



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**

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Update
Formal Review

Date Submitted _____

SECTION I - Identification

Working Title:
Surveyor I

Department:
Transportation

Class Code Number: 171254

Division & Bureau:
District or
Engineering Division, Highways Bureau

Class Code Title:
Surveyor

Section & Unit:
District Survey Unit or
Photogrammetry & Survey Section

Pay Band: 4

Work Address:
Statewide

Position Number: 90768, 91948, 91308, 91318, 90098,
35013, 35014, 98099, 92518, 32054

☐ FLSA Exempt ☒ FLSA Non-Exempt

☐ Non-Union ☒ MPEA ☐ Blue Collar

Profile Completed By:
Bryce Larsen & District Surveyors

Work Phone:
406-444-6321

Work Unit Mission Statement or Functional Description:

The MDT's mission is to serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and sensitivity to the environment.

The Highways and Engineering Division prepares projects for bidding and coordinates highway construction. The division is made up of the Preconstruction and Construction programs; and five District Construction Offices in Missoula, Butte, Great Falls, Glendive, and Billings for budget and workforce purposes.

The Preconstruction program plans and develops details for construction projects. This includes determining location and design features, conducting public hearings and working with local officials, acquiring property for right-of-way and processing contracts up to the time they are awarded to private contractors. The Highways Bureau is made up of diverse programs in the Road Design, Hydraulics and Photogrammetry and Survey Sections.

The Photogrammetry and Survey Section is responsible for the Montana Department of Transportation's photogrammetry and survey programs. Acting as the authority on survey issues for the Department, the Survey Unit is responsible for providing land surveying services, analyzing and reviewing surveys,

coordinating surveys, formulating and implementing MDT survey policy, assuring quality of surveys, securing and managing survey data, serving as the MDT's technical support and resource center for survey issues, and determining and implementing time efficient and cost-effective survey methods.

Each District has a District Survey Unit that is administratively under the District Engineering Services or District Construction program and is under the technical oversight of the Helena Photogrammetry & Survey Section. The District Survey Units are responsible for providing land surveying and support services at the District level.

Describe the Job's Overall Purpose:

This position is an entry level surveyor (**Surveyor I**) for the MDT. The position is responsible for performing a variety of technical and pre-professional survey duties. Examples of duties include: making measurements, collecting and recording survey data, operating survey equipment, setting stakes/monuments, researching records, recovering survey evidence, making rudimentary survey calculations, drafting at an entry level, maintaining survey equipment and sustaining an inventory of survey supplies. The position reports directly to the Land Survey Manager or District Land Survey Manager.

SECTION II - Major Duties or Responsibilities

% of Time

A. Field & Office Surveying

80% of Time

Performs a variety of technical and pre-professional field, office and administrative duties in support of ongoing land survey projects and operations.

1. Researches public and private records (i.e. Bureau of Land Management, National Geodetic Survey, United States Geological Survey, county courthouse, county surveyors, private surveyors, etc.) under the direction of a LSI or PLS to recover title, monument, and/or other survey histories pertinent to the survey being conducted.
2. Contacts landowners to notify them when survey crews will be on their property and finds out if there are any special circumstances survey crews need to be aware of since the right-of-entry forms were completed.
3. Conducts field survey activities by recovering monuments and other survey evidence, operating survey instruments, recording data, setting stakes and monuments and performing other related field survey tasks. Operates machinery and equipment required to accomplish survey tasks including: vehicles, electronic total stations, engineering/digital levels, data collectors, GPS equipment, calculators, computers and software, other standard survey tools and equipment, and various hand tools used for digging, cutting, marking, etc.
4. Performs the following land surveying tasks under the supervision of a professional land surveyor: property corner search, retracing GLO surveys, retracing property boundaries, retracing highway right-of-way, writing legal descriptions, preparing plats, preparing corner recordations, staking property boundaries, making land survey calculations, etc.
5. Organizes, computes, and adjusts survey data to be used in compiling reports, maps, plats and exhibits. Examples of these duties include: reducing field notes, making section break-down calculations, making proportionate measurement calculations, adjusting traverses and level notes, drafting, completing corner recordation forms and calculating surveys.

6. Prepares documents (i.e. - maps, plats, exhibits, control diagrams, certificates of survey, reports, control abstracts, coordinate listings, etc.) to be used in engineering planning and design, right-of-way acquisition and/or for submission to other agencies.
7. Submits completed surveys to the professional land surveyor for review, approval, signature, and distribution.
8. Performs survey reviews for compliance with established standards and for computational accuracy. Identifies areas of non-conformance or substandard work, makes recommendations for resolution and refers them to the Land Survey Manager or appropriate District Land Survey Manager for final action.
9. Positions located in Photogrammetry & Survey participate in maintaining the National Geodetic Survey (NGS) vertical control network by replacing NGS bench marks, running levels in accordance with NGS specifications, and preparing level data for submission to NGS.

B. Survey Party Chief

10% of Time

Serves as party chief for routine field surveys by overseeing field activities under the guidance of a professional land surveyor.

1. Identifies and gathers project background information by reviewing scope of project with professional surveyor. Determines what data needs to be gathered in the field, the resources needed to complete field survey activities information needed to complete survey, determines and gathers required survey background documentation and determines data collection activities for project through discussion with the professional land surveyor. Compares these requirements to available staff and their related expertise/abilities to determine how to complete projects.
2. Reviews survey requests to determine manpower, time, equipment and informational data needed to complete the survey. Determines duty assignments on the site and provides oversight of survey crew to complete survey tasks.
3. Observes survey crews to verify compliance with established methods and techniques, and survey and recording requirements. Notifies supervisor of improper practices or safety concerns. Reports on performance to the supervisor on a daily basis and as part of the formal evaluation process.
4. Provides technical assistance to district survey crews on adjustment and operation of survey equipment to assure the full potential of the equipment is being realized.

C. Equipment Maintenance

5% of Time

Maintains equipment and supply inventories to ensure availability and proper functioning to support survey operations.

1. Schedules repair and maintenance work for the survey vehicle.
2. Evaluates, organizes, and prepares equipment to be used in surveys conducted by the Survey Unit.
3. Adjusts, maintains, and cleans survey equipment to assure proper alignment, operation, and safety. This includes pegging levels, adjusting tribrachs, checking EDMs on calibration baselines, etc.
4. Orders and maintains an inventory of survey supplies to assure availability when needed.

5. Positions located in Photogrammetry & Survey are responsible for reviewing calibration baseline reports for all MDT survey grade electronic measuring devices and maintaining a record of these reports to establish an adjustment and performance history for each instrument.

E. Other Duties

5% of Time

Performs a variety of other duties as assigned in support of Section, Bureau and MDT goals and objectives. Examples of other duties are: assisting other MDT programs on special projects and attending training and educational sessions as required.

Which of the duties and/or specific tasks listed under 1. (above) are considered "essential functions" that must be performed by this position (with or without accommodations)? (If you need information or training on the identification of essential functions, please contact MDT Human Resources Division.)

The following duties are considered essential functions because they require specialized expertise and skill and are the primary reasons the job exists:

Duty A: **Field Surveying**

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Lifting objects in excess of 30 lbs.
- Extensive travel throughout the state or district to project locations
- Ability to walk over uneven terrain or in water
- Operating a personal computer
- Communicating in writing, in person and over the phone
- Continual walking or standing
- Exposure to extreme weather and high-speed traffic
- Operation of motor vehicles
- Operation of power tools and/or equipment

MENTAL

- Computing arithmetic operations
- Comparing data
- Compiling information, Analyzing, Coordinating, Synthesizing, Negotiating, Instructing
- Ability to multi-task
- Ability to meet inflexible deadlines
- Decision-making that affects the public health and safety
- Instructing
- Interpersonal skills/behaviors
- Dealing with the public on a regular basis
- Demands for accuracy in all aspects of work

Does this position supervise others? ☐ Yes ☒ No

Number directly supervised:

Position Number(s) of those supervised:

Serves as party chief for routine field surveys by following instructions provided by PLS. A crew of one to three field people encompassing all levels of Engineering Techs., Rotational Engineers, and Survey Aides are typically assigned to a survey project that involves personnel from the Survey Unit or the District Survey Unit.

Attach an Organizational Chart.

ATTACHED

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE:

This position requires knowledge of standard surveying techniques, practices, and procedures; survey equipment, geometry; trigonometry; computers; survey computation and adjustment software; and documentation and research techniques. The position requires some knowledge of the B.L.M. Manual of Instructions for the Survey of Public Lands, the Montana Subdivision and Platting Act, the Certified Corner Recordation Act.

Knowledge of MDT survey policy and procedures and MDT highway design and construction is desirable.

SKILLS:

This position requires skill in the use and operation of survey instruments of all types; operating computers and survey computation and adjustment software; and in reading and interpreting maps and plans.

Behaviors required to perform these duties?

See MDT Core Behaviors.

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|---|---|
| <input type="checkbox"/> No education required | <input checked="" type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent | <input type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree |

Please specify the acceptable and related fields of study:

Required/Acceptable: Associate's degree in land surveying or geomatics or related field from an accredited college or university.

Related: Civil Engineering Technology or Construction Technology or other curriculums with coursework in math, drafting, surveying techniques, principles, and practices.

Other education, training, certification, or licensing required (specify):

- Requires a valid Montana Drivers License.

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|--|--|
| <input checked="" type="checkbox"/> No prior experience required | <input type="checkbox"/> 3 to 4 years |
| <input type="checkbox"/> 1 year | <input type="checkbox"/> 5 or more years |

Alternative Qualifications:

This agency will accept alternative methods of obtaining necessary qualifications.

- ☒ Yes ☐ No

Alternative qualifications include:

Other related education and experience combinations may be considered.

SECTION IV – Other Important Job Information

Strenuous physical activities are required on the job including digging, cutting, hiking, and packing equipment in excess of 30 lbs. Survey activities are done year around throughout the state exposing the Surveyor to hazards associated with extreme climatic conditions, remote areas, rough terrain, surveying along highway corridors, and risk of injury from potentially dangerous animals. Extensive statewide travel from the Helena headquarters or district office/reporting station and shifts other than normal are required to accomplish department goals and objectives.

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- | | | |
|---|--|--|
| <input type="checkbox"/> Fingerprint check | <input checked="" type="checkbox"/> Valid driver's license | |
| <input checked="" type="checkbox"/> Driver's record check | <input type="checkbox"/> Background check | <input type="checkbox"/> Other; Describe |
-

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: Bryce Larsen _____ Title: Supervisor Photogrammetry & Survey

Signature: _____ Date: 11/30/09

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Name: Jennifer Jensen/Designee Title: Chief Human Resources Officer
Human Resources Division

Signature: _____ Date: _____
